

# The Impact of Communication Applications on people during the COVID-19 Pandemic

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## ABSTRACT

The recent pandemic due to COVID-19 had people restricted to their homes and cut out from social and physical interactions. During this period of time, people had to rely on social media and other communication applications in order to stay connected with friends, family, coworkers and the rest of the world. Our research aims to understand the impact of these applications and whether or not they have been a boon or a bane to society. We attempt to understand the positive or negative impacts of such applications and the inclination of people to use them going forward. The methodology employed was qualitative research analysis via individual interviews. We believe this was the best way to get valuable data for our research topic. Our results lead us to presume that they are indeed useful and have impacted 64% of our research participants in a positive manner. We highlight the pros and cons of these applications as reported to us by the participants in order to understand their standpoint with respect to these applications. These perspectives provide valuable insights to improve engagement and interactions for users.

## INTRODUCTION

In the Spring of 2020, the World Health Organization declared COVID-19 as a pandemic. News about the coronavirus spread all across the globe [3]. The pandemic inadvertently led to decreased physical and social interactions and caused a shift in the way humans worked and communicated. Several countries were pushed into lockdown, forcing people to their homes and enforcing strict social distancing. This of course impacted the way people led their day to day lives. Work and Education was moved online; students found themselves using online platforms for studying and communicating with their lecturers and classmates, employees across industries were asked to complete tasks on online platforms to the best of their ability. The COVID-19 pandemic has indeed impacted the way people use social media [1]. There was an increase in the usage of the internet, with more people going online than ever [2]. This also led to people using platforms and applications for communication and socialization. This shift made us wonder in what capacity and manner did these applications affect people. We also wanted to understand if there was any substantial impact on mental health and well being.

In order to obtain answers, we decided to conduct individual interviews and perform qualitative research on the impact of communication applications on people. Here, we define a communication application as any application on a device (mobile, tablet, computer, etc) that allows users to interact with others via means of text, voice or video calls. Some applications that can be considered as a communication application are Whatsapp, Facebook, Instagram, Discord, etc. Via the process of conducting interviews, we aimed to answer our research question; to better understand the impact of communication applications on people during the COVID-19 pandemic.

## METHODS

We conducted individual interviews: 1) to further understand people's usage of communication applications during the pandemic, and 2) to have a more in-depth discussion about the impact of these applications on mental health during the pandemic.

## Interviews

The interviews were semi-structured and conducted using an interview guide, i.e. we incorporated an interview guide but modified our interview based on the responses of the participants for optimal data collection. Each member sought to use the most convenient method of interviewing their participants: Zoom, Face to Face, Voice Calls, Note Taking, etc. The interviews were audio recorded then appropriately transcribed either while they were being conducted or immediately after.

Each interview began with an introductory statement about participant anonymity, the research and the rights of participants with respect to the research. Participants were informed that they were in no way obligated to answer any questions that they deemed inappropriate or uncomfortable to them. The interview was constructed to be completed within a maximum of 12 minutes.

A brief overview of the interview guide includes questions based on demographics, knowledge of the subject of the research, opinions on the subject, emotional perspectives of the participants with respect to the subject and the benefits and drawbacks.

Code	Association
Application	Mention of a Communication Application that the participant uses.
Feature	Mention of Features of a Communication Application that is used.
Emotion	Mention of the participants feelings associated with Communication Application
Usage	Mention of the Communication Application usage behaviour of the participant.
Views	Mention of any opinions of the participant about Communication Application

**Table 1. Code Book.**

Considering our research topic indirectly extended to certain touchy subjects such as mental health, our team incorporated certain empathetic cues and probes in order to obtain proper information from our participants, without trying to seem as if we were prodding them with a heavy question. We proceeded with our data analysis by formulating a code book which [Table 1] is included to segregate the data from the interviews. Following that, we obtained certain themes and results for our research.

### Participants

Participation in the interviews was entirely voluntary; there was no specific target audience. Our team was split into individual members conducting interviews; with a total of 11 interviews completed (Table 2 summarises their demographics).

We asked participants about their attitudes toward using communication applications during the pandemic. All participants indicated that they were already using communication applications before the COVID-19, and they spent much more time on these applications during the pandemic. 7 participants mentioned that communication applications impacted them positively in helping them stay connected with friends and families while the rest but one mentioned that there was no such evident impact. Most of them pointed out the usage will be reduced in the post-pandemic era since they will meet people physically. Some participants expressed worry that being addicted to such applications would lead to time wastage and negatively impact mental health. A considerable number of participants pointed out that they had a strong feeling of missing out on social interactions as well.

### RESULTS

Most of our participants reported that the communication applications proved to be a helpful alternative for real life interactions and have affected them in a positive manner. We let our participants reflect on the relation between usage and their mental health. Our participants had split responses regarding the impact of these applications on their mental health. One half of the responses indicated that it did have a positive impact on the users but the other half indicated that it had little to no effect. With respect to the benefits and drawbacks of these

applications, we received an interesting collection of opinions and suggestions from our participants.

From the participants interviewed, we have obtained the following list [Table 3] of applications for each category:

- Socialization - Whatsapp, Discord, Instagram, Facebook, Text (Regular), Phone Calls, Line, WeChat, Facetime, Reddit, Snapchat, KakaoTalk, Dcard
- Work - Slack, Zoom, Microsoft Teams, Google Meet, Email, LinkedIn

Application	No. of Participants who use these applications
Facebook	11
Instagram	11
Whatsapp	9
Line	3
Zoom	3
Messages	2
Phone Call	2
Email	2
Slack	2
Discord	2
Reddit	2
WeChat	2
Snapchat	1
KakaoTalk	1
Dcard	1
FaceTime	1
Google Meets	1
Microsoft Teams	1
LinkedIn	1

**Table 3. Applications Used by Participants**

### Effect on Mental Health

Our participants mentioned the difference of usage in such communication applications before and after the pandemic. Since the pandemic has kept people distanced from each other, communication applications seem to have played a more important role in human's daily life. People utilized these applications for both personal and professional purposes. For instance, they could access virtual meetings, conferences, and workshops like Zoom, Meets, etc for work. In addition, people engaged in social interactions via socialization applications such as Instagram and Facebook.

P10: *"Yes, I fostered many new relationships over these apps which have bettered me significantly especially during the pandemic. Having accessibility to people over these apps definitely helped me maintain, you know, peace of mind."*

P8: *"I mean connecting with people is the only thing that is keeping me sane in this pandemic, me and my friends miss each other a lot so we talk for hours in group video calls. But online classes suck, I miss being around my friends, attending classes, joking around during classes."*

ID	Age	Gender	Location During the COVID-19	Profession During the Pandemic
P1	27	F	Westchester, USA	Grad student
P2	24	F	Taichung, Taiwan	International sales representative
P3	24	F	Taipei, Taiwan	Journalist
P4	24	F	Pune, India	Unemployed
P5	23	F	Ahmedabad, India	Associate software engineer
P6	23	F	Boston, USA	Student
P7	20	F	Bangalore, India	Student
P8	22	M	Bangalore, India	Student
P9	30	F	Rochester, USA	Student and Professional ASL Interpreter
P10	21	M	Bangalore, India	Student
P11	21	M	Wisconsin Rochester, USA	Student and Working a Co-Op

**Table 2. Participant demographics with location during pandemic, and profession during pandemic. Each participant has been assigned a pseudonym.**

P9: *“To be honest it’s a little bit hard to separate the impacts to my mental health with the pandemic and everything going in general, and from specifically using messaging apps. I do think it feels lonelier to communicate with people via text instead of being able to see them. But at the same time I’d rather communicate via text than not communicate at all.”*

P6: *“Yes, by using social media you keep in touch with everyone else but you feel a sense of missing out because you’re at home and that can affect you negatively.”*

### Drawbacks and Benefits via Texting

Some of the insights that we got through our interviews were, people often find it hard to convey their emotions through text, even though there are emojis people find it difficult to express their exact feelings through them.

P1: *“Sometimes communicating with others via text is easy to drive a misunderstanding with others since we can’t catch the mood on their face immediately. But I think the emoji really helps to improve this kind of situation.”*

P2: *“Since communicating by text still differs from interacting with others in person, sometimes it may cause misunderstanding in each other. There are times that you can’t easily tell people’s feelings and emotions thoroughly by words.”*

P10: *“The biggest benefit that I see is bridging the gap that could not be bridged before or rather we didn’t really consider that...People have been way more productive. And I feel that communication applications have brought about this change, which has been the biggest benefit to me.”*

Also, getting used to interacting with people mostly via text might cause one’s nervousness while facing others in real life.

P2: *“...it also makes me a little nervous to interact with people face to face. After all, I can’t make a pause or simply send emojis in real life, can I?”*

P2: *“...being used to chatting online makes me a little nervous to think that it might be awkward to interact*

*with others in real life...it is the unknown reaction of the others that makes me anxious.”*

On the other hand, texting indeed helps people communicate in a more precise and polite way.

P1: *“I could think twice before I send out the text to others, and don’t need to give an instant reaction...I could give more polite and proper feedback to others. And I get more personal space for myself but I still can interact with other individuals.”*

Although communication via these applications bridges the distance between people, it does not prove to be a complete substitute for in person interactions and people would prefer if there were features to enhance realistic communication via text/voice/video.

P10: *“...And obviously these apps are built for such situations but in these situations you can’t really gauge someone’s body language, the infliction of the tone in their voice, etc. If such apps could convey such expressions over video/voice/text, that would be better.”*

### Privacy Concerns

One of the interviewees also expressed his concern about these apps’ privacy policies, it is often the case that companies sell their users data to advertisers, so the interviewee feels that it is an infringement of his privacy.

P8: *“I want to feel more safe about my data when using these apps. I read these articles on the news about people’s data being leaked on Facebook. And I’m like what, so yeah privacy is something these apps need to work on.”*

Students also expressed their concern about online exams, they feel that the security check process before the start of the exam and issues like poor network connectivity and unintended background noise makes students anxious that their exam will not be validated. They also feel that online lectures are often not interactive enough so they feel distracted during these lectures.

### DISCUSSION

The data shows us that most participants do indeed believe that social media and communication applications pos-

itively affect people. Our focuses were on engagement, mental health, benefits and drawbacks of these applications. Considering our research question, we believe that social media and communication applications do indeed have a positive impact on people from a generic as well as mental health standpoint. Communication Applications bridge the gap between people and help connect people across the world irrespective of the time and location. Having access to the internet or any network has definitely helped people in communicating with their loved ones and the rest of the world.

We had participants report that as much as they do appreciate the benefits of social media and communication applications, they don't prove to be a substitute for real life interactions. These applications, however useful, are not at the level that they could completely replace in-person interactions. Although one could argue that some platforms can serve as substitutes for in-person interactions, the nuances of face to face communication is something yet to be simulated accurately on such platforms. Man is a social being and it is natural for us to want to communicate in a real manner.

It was interesting to observe how all the participants use at least one application from the Facebook ecosystem. The data also points to Instagram being the most popular social media application as a one for all. It is common knowledge that applications belonging to the Facebook family are well used around the globe. These applications tackle all three main forms of communication: text, voice and video. Despite there being applications that offer more (For e.g. Discord), most people resort to using Facebook family applications for their day to day communication. One could argue that this is due to the fact that these applications are easier to use and have a massive user base but it would be interesting to know why these are still preferred over other applications and the impact of these applications specifically. Correlating that the Facebook family of applications is used the most by our participants and the fact that a majority of them reported that communication applications have a positive impact, we could say that the Facebook ecosystem has impacted people positively. However, this could be better explored by performing a specific research for the same.

For work and study related usage, there was no application that dominated as such and most of the participants relied on different applications. Almost every participant reported that they used video conferencing applications for work or education purposes. The converse could also be considered true with most people mentioning that they used video calling features primarily for school or work. A research question for future work could include what applications did people use for work and education.

### **Challenges and Limitations**

During the course of our research, we faced different challenges each step of the way. Most of our work was conducted asynchronously as each member of the group conducted interviews separately. Work was delegated in such a manner that we could work individually and then come together to complete our work. While working separately, we did face

technical difficulties where information hadn't been updated appropriately via cloud. This led to some miscommunication and trouble with documentation. With respect to the interviews, there was some trouble in fixing suitable times with our online participants to appropriately conduct their interviews.

We observed that in our research, we had certain limitations that could potentially be resolved in our future work. Our research was conducted in the summer of 2021, due to which the responses we received reflect the thoughts of participants during the ongoing pandemic. Moreover, our research had no specific target audience set, we did have trouble in getting participants across varying age groups to help with our research. Most of our participants happened to be young adults within the age range of 20-30. Due to the lack of time and convenience to interview a large group of people, we were limited to interviewing individuals who were easily accessible to us and who were willing to participate in our research. This limited us to participants belonging to certain demographics. We hope to overcome these limitations by making up for it in our future work.

### **CONCLUSION AND FUTURE WORK**

People rely on communication applications for both personal and professional use. Our research explores the impact on people's mental health, and changes in the use of these applications caused by the COVID-19 pandemic. The usage did increase during this era to release people's sense of loneliness and gain social engagement while quarantined. Based on our research, 64% of people stated that they did receive positive impact from communication applications; 27% of people stated they felt neutral about that, and 9% of people mentioned communication applications impacted them both positively and negatively. Participants did report that these applications are beneficial but they could never truly replace in-person communication.

#### **Future Work**

Future work would include us expanding our research to participants with varied demographics and diversity. We also plan to conduct another set of interviews when the pandemic is officially announced to be over. This would provide more insights regarding usage and the impact on mental health. The research conducted was primarily qualitative and to understand the sentiments and perspectives of participants. Additionally, the study could potentially be more comprehensive to help us answer our research question better.

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